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मानक

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Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 12032-8 (1987): Graphical symbols for diagrams in the field of electrotechnology, Part 8: Measuring instruments, lamps and signalling devices [ETD 1: Basic Electrotechnical Standards]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrihari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

**GRAPHICAL SYMBOLS FOR DIAGRAMS IN THE
FIELD OF ELECTROTECHNOLOGY**

PART 8 MEASURING INSTRUMENTS, LAMPS AND SIGNALLING DEVICES

(IEC Title : Graphical Symbols for Diagrams —
Part 8 : Measuring Instruments, Lamps and Signalling Devices)

National Foreword

This Indian Standard (Part 8) which is identical with IEC Pub 617-8 (1983) 'Graphical symbols for diagrams — Part 8 : Measuring instruments, lamps and signalling devices'; issued by the International Electrotechnical Commission (IEC), was adopted by the Bureau of Indian Standards on the recommendation of the Basic Electrotechnical Standards Sectional Committee and approval of the Electrotechnical Division Council.

Cross Reference

International Standard

- IEC Pub 27 Letter symbols to be used in electrical technology
- IEC Pub 617-2 (1983) Graphical symbols for diagrams — Part 2 : Symbol elements, qualifying symbols and other symbols having general application

Corresponding Indian Standard

- IS : 3722 Letter symbols and signs used in electrical technology (in 2 Parts)
- IS : 12032 (Part 2)-1987 Graphical symbols for diagrams in the field of electrotechnology : Part 2 Symbol elements, qualifying symbols and other symbols having general application

Basic Electrotechnical Standards Sectional Committee, ETDC 1 [Ref : Doc : ETDC 1 (3071)]

Adopted 18 June 1987	© November 1988, BIS	Gr 7
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SECTION 1 – INDICATING, RECORDING AND INTEGRATING
INSTRUMENTS, GENERAL SYMBOLS

- 1.1 The asterisk within the symbols of this section shall be replaced with one of the following:

- the letter symbol for the *unit* of the quantity measured, or a multiple or sub-multiple thereof (see examples 08-02-01 and 08-02-07);
- the letter symbol for the *quantity* measured (see examples 08-02-05 and 08-02-06);
- a chemical formula (see example 08-02-13);
- a graphical symbol (see example 08-02-08).

The symbol or formula used should be related to the information displayed by the instrument regardless of the means used to obtain the information.



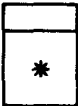
- 1.2 Letter symbols for *units* and for *quantities* shall be selected from one of the parts of IEC Publication 27: Letter Symbols to be Used in Electrical Technology.

Provided IEC Publication 27, or the letter symbols for chemical elements, do not apply, other letter symbols may be used, if they are explained on the diagram or in referenced documents.



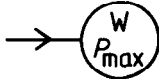







- 1.3 If the letter symbol for the *unit* of the quantity measured is used, it may be necessary to show the letter symbol for the *quantity*, as supplementary information. It should be placed below the unit letter symbol (see example 08-02-02).






Supplementary information concerning the quantity measured, and any necessary qualifying symbol may be shown below the quantity letter symbol.

- 1.4 If more than one quantity is indicated or recorded by an instrument, the appropriate symbol outlines shall be placed attached in line, horizontally or vertically (see examples 08-03-02 and 08-04-14).


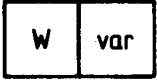

No.	Symbol	Description
08-01-01		<p>Indicating instrument</p> <p>The asterisk shall be replaced in accordance with the rules given in Clause 1.1</p>
08-01-02		<p>Recording instrument</p> <p>The asterisk shall be replaced in accordance with the rules given in Clause 1.1</p>
08-01-03		<p>Integrating instrument Energy meter</p> <p>The asterisk shall be replaced in accordance with the rules given in Clause 1.1</p> <p><i>Notes</i> 1. – The symbol may also be used for a remote instrument which repeats a reading transmitted from an integrating meter. For example, see symbol 08-04-11.</p> <p>2. – The outline may be combined with that for a recording instrument to represent a combined instrument. For example, see symbol 08-04-14.</p> <p>3. – Symbols from Section 5 of IEC Publication 617-2: Graphical Symbols for Diagrams, Part 2: Symbol Elements, Qualifying Symbols and Other Symbols Having General Application, may be used to specify the direction of energy flow. For examples, see symbols 08-04-04 to 08-04-07.</p> <p>4. – The number of rectangles at the top of the symbol indicates the number of different summations by a multirate meter. For example, see symbol 08-04-08.</p>

SECTION 2 - EXAMPLES OF INDICATING INSTRUMENTS

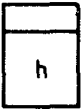
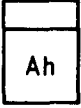
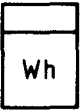
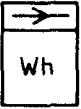


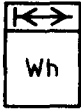
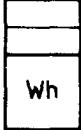

No.	Symbol	Description
08-02-01		Voltmeter
08-02-02		Reactive current ammeter
08-02-03		Maximum demand indicator actuated by an integrating meter
08-02-04		Varmeter
08-02-05		Power-factor meter
08-02-06		Phase meter
08-02-07		Frequency meter
08-02-08		Synchronoscope
08-02-09		Wavemeter
08-02-10		Oscilloscope

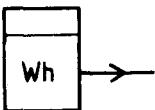
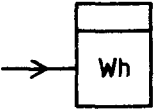
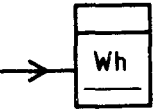

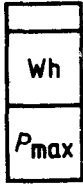

No.	Symbol	Description
08-02-11		Differential voltmeter
08-02-12		Galvanometer
08-02-13		Salinity meter
08-02-14		Thermometer Pyrometer <i>Note. – θ may be replaced by t°.</i>
08-02-15		Tachometer

SECTION 3 – EXAMPLES OF RECORDING INSTRUMENTS

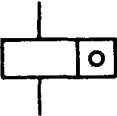
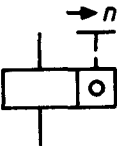
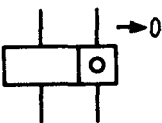
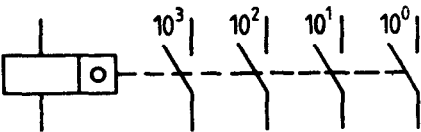
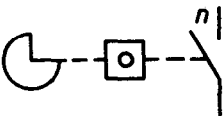
No.	Symbol	Description
08-03-01		Recording wattmeter
08-03-02		Combined recording wattmeter and varmeter
08-03-03		Oscillograph

SECTION 4 – EXAMPLES OF INTEGRATING INSTRUMENTS







No.	Symbol	Description
08-04-01		Hour meter
08-04-02		Ampere-hour meter
08-04-03		Watt-hour meter
08-04-04		Watt-hour meter, measuring energy transmitted in one direction only
08-04-05		Watt-hour meter, measuring the energy flow from the busbars
08-04-06		Watt-hour meter, measuring the energy flow towards the busbars
08-04-07		Import-export watt-hour meter
08-04-08		Multi-rate watt-hour meter, two-rate shown
08-04-09		Excess watt-hour meter

No.	Symbol	Description
08-04-10		Watt-hour meter with transmitter
08-04-11		Remote meter (repeater) actuated by a watt-hour meter
08-04-12		Remote meter (repeater) with printing device, actuated by a watt-hour meter
08-04-13		Watt-hour meter with maximum demand indicator
08-04-14		Watt-hour meter with maximum demand recorder
08-04-15		Var-hour meter

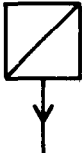

SECTION 5 – COUNTING DEVICES

No.	Symbol	Description
08-05-01	Use symbol 02-14-02	Counting function of a number of events, qualifying symbol
08-05-02		Pulse meter (electrically-operated counting device)
08-05-03		Pulse meter manually pre-set to n (reset if $n = 0$)
08-05-04		Pulse meter electrically reset to 0
08-05-05		Pulse meter with multiple contacts Respective contacts close once at every unit (10^0), ten (10^1), hundred (10^2), thousand (10^3) events registered by the counter
08-05-06		Counting device, cam driven and closing a contact for each n events




SECTION 6 – THERMOCOUPLES

No.	Symbol	Description
08-06-01	Form 1 	Thermocouple, shown with polarity symbols
08-06-02	Form 2 	Thermocouple with direct indication of polarity, the negative pole being represented by the thick line
08-06-03		Thermocouple with non-insulated heating element <i>Note.</i> – Symbol 05-07-07 may be used to represent the heating element instead of symbol 05-07-06.
08-06-04	Simplified form 	
08-06-05		Thermocouple with insulated heating element The note with symbol 08-06-03 applies
08-06-06	Simplified form 	

SECTION 7 – TELEMETERING DEVICES


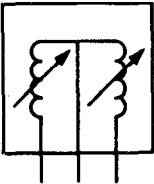

No.	Symbol	Description
08-07-01	Use symbol 02-17-06	Signal translator, general symbol
08-07-02		Telemetering transmitter
08-07-03		Telemetering receiver

SECTION 8 – ELECTRIC CLOCKS


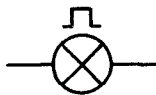


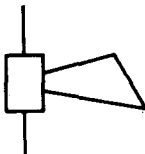
No.	Symbol	Description
08-08-01		Clock, general symbol Secondary clock
08-08-02		Master clock
08-08-03		Clock with switch








SECTION 9 – MISCELLANEOUS MEASURING ELEMENTS
AND INSTRUMENTS

No.	Symbol	Description																				
08-09-01		Continuous loop fire detector																				
08-09-02		<p>Synchro, general symbol</p> <p>The asterisk must be replaced by the appropriate letters for the particular synchro being symbolized. The letters to be used according to the function of the synchro are as follows:</p> <table><tr><td><i>First letter</i></td><td><i>Function</i></td></tr><tr><td>C</td><td>Control</td></tr><tr><td>T</td><td>Torque</td></tr><tr><td>R</td><td>Resolver</td></tr></table> <table><tr><td><i>Succeeding letter</i></td><td><i>Function</i></td></tr><tr><td>D</td><td>Differential</td></tr><tr><td>R</td><td>Receiver</td></tr><tr><td>T</td><td>Transformer</td></tr><tr><td>X</td><td>Transmitter</td></tr><tr><td>B</td><td>Rotatable stator winding</td></tr></table> <p>In the symbol, the inner circle represents the rotor and the outer circle the stator or, in certain instances, a rotatable outer winding</p>	<i>First letter</i>	<i>Function</i>	C	Control	T	Torque	R	Resolver	<i>Succeeding letter</i>	<i>Function</i>	D	Differential	R	Receiver	T	Transformer	X	Transmitter	B	Rotatable stator winding
<i>First letter</i>	<i>Function</i>																					
C	Control																					
T	Torque																					
R	Resolver																					
<i>Succeeding letter</i>	<i>Function</i>																					
D	Differential																					
R	Receiver																					
T	Transformer																					
X	Transmitter																					
B	Rotatable stator winding																					
08-09-03		Torque transmitter																				
08-09-04		Gyro																				
08-09-05		Angular position or pressure transmitter, Desynn type (d.c. type)																				

No.	Symbol	Description
08-09-06		Angular position or pressure indicator, Desynn type (d.c. type)
08-09-07		Angular position or pressure transmitter, inductor type
08-09-08		Angular position or pressure indicator, inductor type

SECTION 10 – LAMPS AND SIGNALLING DEVICES

No.	Symbol	Description
08-10-01		<p>Lamp, general symbol Signal lamp, general symbol</p> <p><i>Notes 1.</i> – If it is desired to indicate the colour, a notation according to the following code is placed adjacent to the symbol:</p> <p>RD = red YE = yellow GN = green BU = blue WH = white</p> <p><i>2.</i> – If it is desired to indicate the type of lamp, a notation according to the following code is placed adjacent to the symbol:</p> <p>Ne = neon Xe = xenon Na = sodium vapour Hg = mercury I = iodine IN = incandescent EL = electroluminescent ARC = arc FL = fluorescent IR = infra-red UV = ultra-violet LED = light emitting diode</p>
08-10-02		Signal lamp, flashing type
08-10-03		Indicator, electromechanical Annunciator element
08-10-04		Electromechanical position indicator with one de-energized (shown) and two operated positions
08-10-05		Horn

No.	Symbol	Description
08-10-06	Preferred form 	Bell
08-10-07	Other form 	
08-10-08		Single-stroke bell
08-10-09		Siren
08-10-10	Preferred form 	Buzzer
08-10-11	Other form 	
08-10-12		Whistle, electrically operated